



Cyber Security Preparedness for CEN School Principals

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Presenter Introduction Paul Carnemolla & Solomon James



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Today's resources and further information



https://www.neweratech.com/au/covenant-principalsconference-cybersecurity-in-schools/

Overview

- Importance of Cyber Security in Education.
- Covenant Cyber Security Overview.
- Planning and Preparing for a Cyber Attack.
- Preparing a Cyber Security Incident Response Plan.
- Reporting to the Board.



Cyber Security Breaches Optus – September 2022

Optus Breach Overview

EVENTOptus Data BreachWHENSeptember 2022







Optus Breach Outcome



CLASS ACTION BY LAW FIRM

INVESTIGATIONS

UNDERWAY

OPTUS'

RESPONSE





- Australian Federal Police
- Information Commissioner
- ACMA (Communications Watchdog)
- Denial of Human Error by Optus

MEDIA COVERAGE AFTER BREACH

25% Increase in Negative Media
13% Decrease in Positive Content

33% Negative
5% Positive (Based on Meltwater)



- Apology for Breach
 - \$140 Million Allocated:
 - Customer ID Document Renewal
 - Independent Report Commissioned



REPUTATION

IMPACT





Optus Breach Timeline









optusdata (the hacker) demands ransom of US \$1 million on the hacking forum Breached

optusdata posts 10,000 customer records were breached

Home Affairs Minister Clare O'Neil blames Optus for the attack

Slater & Gordon announce its class action investigation



SEPTEMBER 27

optusdata deletes their earlier posts and issues an apology to victims of the breach and Optus

SEPTEMBER 28



Maurice Blackburn announce its class action investigation Cyber Security Breaches Newcastle Grammar School – November 2020



Newcastle Grammar School Overview

EVENTNewcastle Grammar School Ransomware AttackWHENNovember 2020





Newcastle Grammar School Immediate Impacts



- Became Headline News
- Challenging Communication
- Media Engagement



- Students Couldn't Attend
- Staff Workload Increased
- Exam & Report Rewrite



- DATA
 Sensitive Information Lost
 Staff Financial Records
 - Photographs
 - Parent Contact Hindered

VUI

- VULNERABILITIES EXPOSED
- Risk Management Flaws
- Costly Recovery & Rebuilding





Newcastle Grammar School Outcome

"Every resource was put towards rebuilding our system as quickly as we possibly could and minimising the impact." ~ Erica Thomas, School Principal



- Malicious email opened by staff (human error)
- System protection failed

OUTCOME • Systems restored in 5 weeks

- 1M+ files checked
- Lost: Files over 2+ months (reports, exams)





Importance of Cyber Security in educational institutions



Importance of Cyber Security in educational institutions



Education sector graphic From Clyde and Co Attack Webinar 202307.19

Incident trends in the past 12 months*



Incidents by sector

Sector	% of breaches
Healthcare	15% (▲3%)
Professional Services	13% (▼ 8%)
Financial Services / Institutions	12% (▼2%)
Construction	8% (▲4%)
Retail / Hospitality	8% (▼3%)
Technology	7% (▲2%)
Real Estate	6% (▲1%)
Education	5% (▲2%)
Non-profit	5% (►0%)
Transportation / Logistics	5% (▲3%)
Manufacturing	5% (▲1%)
Entertainment / Recreation / Media	5% (▲1%)
Public Entity	3% (▼2%)
Charity	2% (▼1%)
Utilities	1% (►0%)





Project Timeline The Covenant Story



REFINING

2023 • Term 2 (in progress) Microsoft 365 Security Remediation

2023 • Term 3 (in progress) Incident Response Plan – Project

Web Application Firewall

2023 • Term 4

Definitiv Cloud payroll solution

Cyber Security framework

Cyber Security Risk Assessment

2024 • Term 1 Secondary Laptop Program

REMEDIATION

INCEPTION2021 • Term 3
Implementation of Intune /
Endpoint Manager

Upgrade Endpoint Security

2022 • Term 4 Jamf Pro Security Audit + Jamf Connect Config

Windows 11 Configuration and AutoPilot Setup

2022-2023 School Holidays 2nd Pen. Remediation

2023 • Term 1 Secure-ISS SIEM Implementation

Security Uplift Project (x2)

2023 • Term 2 Security Awareness platform – Knowbe4

Microsoft 365 Security Audit

BASELINE

2021 • Term 3

Pre-ICT Leadership - New Era

2021 • Term 4

Internal

• External

• Wi-Fi

Penetration Test

Disaster Recovery Planning

2021-2022 School Holidays

1st Internal Pen. Remediation

On-premise services:

- Active Directory
- Attache (Finance)
- FileShare
- WebHelpdesk
- CounselPro

Cloudwork for MFA/SSO

Microsoft 365 A5 Suite

Hybrid Exchange in Cloud and Azure

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Penetration Testing Enhancing Cyber Security Through Penetration Testing

- School underwent a comprehensive Penetration Testing in Term 4 2021, covering:
 - Internal Penetration tests
 - External Penetration tests
 - Wi-Fi Penetration tests

Finding ID	Risk	Title	Remediation Timeframe	Status
INPT-1	Extreme	Account and privilege management is not adequate.	3-6 Months	Open
INPT-2	Extreme	Password hygiene is not adequate.	1-2 Months	Open
ENPT-1	High	Multi-factor authentication is not required for external access to Virtual Private Network.	1-2 Months	Open
ENPT-2	High	Users are susceptible to email-based phishing attacks.	Ongoing	Open
ENPT-3	High	Website is vulnerable to web cache poisoning.	N/A	Closed
INPT-3	High	Systems are vulnerable to null session attack.	1 Month	Open
INPT-4	High	Students have local administrative privileges and wide-reaching network access on	Covenant to confirm	Open
INPT-5	High	Domain is susceptible to Kerberoasting attacks.	1-2 Months	Open
WNPT-1	High	Wireless LAN is not logically segmented from wired LAN.	3 Months	Open
WNPT-2	High	No Wireless Intrusion Prevention System (WIPS) implemented.	1 Month	Open
ENPT-4	Moderate	DNS server vulnerable to zone transfer.	N/A	Closed
ENPT-5	Moderate	Issues with certificates used to validate host identity.	3 Months	Open
ENPT-6	Moderate	DMARC has not been implemented.	1 Month	Open
ENPT-7	Moderate	DKIM has not been implemented on primary mail domain.	1 Month	Open
INPT-6	Moderate	Credentials are cached on workstations that are constantly connected to Domain Control	1-2 Months	Open
INPT-7	Moderate	KRBTGT account password has not been changed for an extensive period of time.	2 Weeks	Open
INPT-8	Moderate	Directory Replication allowed to hosts other than Domain Controllers.	1-2 Months	Open
INPT-9	Moderate	Domain Administrators are not restricted to Domain Controllers.	2 Weeks	Open
INPT-10	Moderate	Administrators are assigned debug privileges.	2 Weeks	Open
INPT-11	Moderate	VMware vCenter missing critical security patches.	2 Weeks	Open
INPT-12	Moderate	Issues with certificates used to validate host identity.	1-2 Months	Open
INPT-13	Moderate	802.1X authentication not implemented on wired network.	6-12 Months	Open





Microsoft Security Uplift

Security features and enablers within the suite of Microsoft products in use:

- Microsoft Endpoint Manager
- Microsoft Security Score
- Defender for Endpoint Plan 2 and Office 365 Plan 2
- Conditional Access
- Data Loss Prevention
- Compliance Program for Microsoft Cloud

Microsoft License Feature Comparison



Security Information and Event Management

Secure-ISS - https://secure-iss.com/

- Correlates events from all available log sources in real-time ensure threat alerts are prioritised
- 24/7 SOC (Security Operation Centre) escalate and contain identified threats
- Minimal resources required from the TechServe team

NETWORK ACTIVITY DATA ACTIVITY USERS AND IDENTITIES THREAT INTELLIGENCE CONFIGURATION INFORMATION VULNERABILITIES AND THREATS APPLICATION ACTIVITY CLOUD PLATFORMS

ENDPOINT





Security Event Monitoring	Secure ISS	School Resource
Deployment of virtual appliance(s) to collect and store security logs		
Integration into IBM QRadar Management Console (SIEM)	V	
Tuning	V	
Monitoring & Detection (24x7)	Ø	
Security Analyst - Reporting and Notification Period (8x5)		
Threat Intelligence (IBM X-Force + collection/sharing of school threats)		
Cloud Security Monitoring		
Incident Management (Triage, Investigate, Analyse)		
Security Operations Centre Touchpoints:		
Live Updates of Security Incidents		
Monthly Security Operation & Governance Reporting		
Incident Response (Disrupt & Contain)		
Incident Remediation		

Security Event Monitoring is priced at **\$1 per month, per enrolled** student (based on the above scope of work / service)





Secondary Laptop Program

- Board endorsed decision to move to school managed Windows devices for secondary students
- Web filtering and content control
- Enhanced security controls
- Centralised monitoring and management
- Data protection and controlled software deployment
- Swift remediation of any vulnerability or software threats
- Conditional Access management

	4-year rollout					
	7	8	9	10	11	12
2024	x		x			
2025	x	x	x	x		
2026	x	x	x	x	x	
2027	х	x	x	x	x	x
2028	x	x	x	x	x	x
2029	x	x	x	x	х	x









Other Key Projects

- KnowBe4 Security Awareness Training and regular Phishing campaigns
- Data Classification
- Security Improvements:
 - Enhanced network segregation
 - 802.1x network authentication for wired network
- Security Questionnaire for Third-Party Vendors
- Cyber Security Incidence Response Plan



Planning and preparing for a cyber-attack



Planning and preparing for a Cyber-Attack



1 – Establish an ICT Governance Framework

The key tasks to establishing an ICT Governance Framework with an IT Steering Committee include:







1 GOVERNANCE 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSIS 5 KEY TECH

6 AGENDA ITEM

2 – What to Protect and Why?

To effectively protect your school's assets, it is crucial to understand what needs to be protected and why.



What is Data and Application Mapping?

- Identify data-app relationships
- Understand data flow, access, manipulation
- School gains insights into:
 - IT data flow
 - App interaction
- Ingress/egress points to network
- Security weaknesses
- Data protection

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1 GOVERNANCI

FRAMEWORK

5 KEY TECH 6 AGENDA ITEN 7 EDUCATE

Cyber Risk Assessment Data Map and Sensitivity Rating

- Data Sensitivity
 - Public
 - Personal
 - Sensitive
- Visual representation of risk in each system.
- Can be reviewed internally or by software provider
- Data classification categories:
 - Student and Parent Data
 - Staff Data
 - Finance
 - HR and Payroll
 - Marketing
 - Governance, Risk and Compliance
 - IT Data

Data Categories	Data Items	Sensitivity Label Impact to school if information is included in a data breach High = 5, Low = 1
Cloud or On Premise		
MFA Enabled		
Student and Parent Data	Student - Name	3
	Student - Address	4
	Student - Photos	4
	Student - DOB	4
	Student - Medical records	5
	Student - Academic Records	4
	Student - School email address	3
	Student - Mobile phone number	3
	Student - Counselling notes	5
	Student - discipline notes	5
	Student - welfare notes	5
	Parent - Name	3
	Parent - Address	4
	Parent - Phone number	3
	Parent - email address	3
	Parent - Bank account details	5
	Parent - Credit card details	5
Staff data	Staff - Name	3
	Staff - Address	4
	Staff - DOB	4
	Staff - Personl phone numbers	4
	Staff - Photos	4
	Staff - Personal email address	4
	Staff - License or other	5

Data Classification Activity



Or go to this link and click "View Data Classification Exercise":



https://www.neweratech.com/au/covenant -principals-conference-cybersecurity-inschools/







Cyber Risk Assessment Cyber Security Questionnaire for Vendors

Gauge how the vendors treat your data and what security practises they employ:

- Data protection
- Security and integrity
- Backups and recovery
- Compliance and certifications
- Risk management

Easy to access online questionnaire using Microsoft Forms

General Security
4. What security measures do you have in place to protect against common threats like malware, DDoS attacks, and data breaches?
Enter your answer
5. Do you conduct regular security audits or penetration tests to identify vulnerabilities?
Enter your answer
6. Are your systems and applications regularly patched and updated to address known security vulnerabilities?
Enter your answer







3 – Develop and Agree to a Cyber Security Framework

Cyber Security Frameworks

Essential 8 Maturity Model Australian Cyber Security Centre (ACSC)

Centre for Internet Security (CIS) Controls National Institute of Standards and Technology (NIST) Cyber Security Framework





1 GOVERNANCE 2 PROTECT 3 FRAMEWORK

4 GAP ANALYSIS 5 KEY TECH 6 AGENDA ITEM 7 EDUCATE

Essential 8 (Maturity Model) Strategies



Daily Backups

To maintain the availability of critical

business data

1 GOVERNANCE

Multi-Factor Authentication

To protect against unauthorised access

Essential 8 (Maturity Model) Maturity Levels







1 GOVERNANCE 2 PROTECT

Centre for Internet Security (CIS)





https://www.cisecurity.org/

CIS Controls **18 Controls**





Christian School

All knowledae throuah Christ

1 GOVERNANCE 2 PROTECT

CIS Control - 3

Data Protection

Control	CIS Safeguard	Asset Type	Secure Function	Data Protection	IG1	IG2	IG3
	3.1	Data	Identify	Establish and Maintain a Data Management Process	х	х	Х
	3.2	Data	Identify	Establish and Maintain a Data Inventory	х	х	х
	3.3	Data	Protect	Configure Data Access Control Lists	х	х	х
	3.4	Data	Protect	Enforce Data Retention	х	х	х
	3.5	Data	Protect	Securely Dispose of Data	х	х	х
	3.6	Devices	Protect	Encrypt Data on End-User Devices	х	х	х
5	3.7	Data	Identify	Establish and Maintain a Data Classification Scheme		х	х
5	3.8	Data	Identify	Document Data Flows		х	х
	3.9	Data	Protect	Encrypt Data on Removable Media		х	х
	3.10	Data	Protect	Encrypt Sensitive Data in Transit		х	х
	3.11	Data	Protect	Encrypt Sensitive Data at Rest		х	х
	3.12	Network	Protect	Segment Data Processing and Storage Based on Sensitivity		х	х
	3.13	Data	Protect	Deploy a Data Loss Prevention Solution			х
	3.14	Data	Detect	Log Sensitive Data Access			х





1 GOVERNANCE 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSIS 5 KEY TECH 6 AGENDA ITEM 7 EDUCATE

E8

CIS

NIST
CIS Benchmarks

SECURE CONFIGURATIONS

Enhance security and reduce risk by modifying system default settings.

Cloud systems such as Microsoft and Google systems prioritise functionality and collaboration over security by default.

CIS Benchmarks are leading industry practices for secure IT system configuration.



Home CIS Benchmarks

CIS Benchmarks List

The CIS Benchmarks are prescriptive configuration recommendations for more than 25+ vendor product families. They represent the consensus-based effort of cybersecurity experts globally to help you protect your systems against threats more confidently.

DOWNLOAD BENCHMARKS →

CLOUD PROVIDERS

Are you new to the CIS Benchmarks? Learn More



Find the CIS Benchmark you're looking for



Select your technology. Choose from operating systems, cloud providers, network devices, and more.

1 2 3 4

DESKTOP SOFTWARE DEVSECOPS TOOLS MOBILE DEVICES MULTI FUNCTION PRINT DEVICES NETWORK DEVICES OPERATING SYSTEMS SERVER SOFTWARE





E8

CIS

NIST

CIS Benchmarks Sample – iPadOS

Restrictions	92
 Functionality 	93
$\circ~$ (L2) Ensure "Allow screenshots and screen recording" is set to "Disabled" (Manual)	94
$\circ~$ (L1) Ensure "Allow voice dialing while device is locked" is set to "Disabled" (Automated)	96
\circ (L1) Ensure "Allow Siri while device is locked" is set to "Disabled" (Automated)	98
\circ (L1) Ensure "Allow iCloud backup" is set to "Disabled" (Automated)	100
$\circ~$ (L1) Ensure "Allow iCloud documents & data" is set to "Disabled" (Automated)	102
 (L1) Review "Allow iCloud Keychain" settings (Automated) 	104
$\circ~$ (L1) Ensure "Allow managed apps to store data in iCloud" is set to "Disabled" (Automated)	107
\circ (L2) Ensure "Allow USB drive access in Files app" is set to "Disabled" (Automated)	109
$\circ~$ (L2) Ensure "Allow network drive access in Files app" is set to "Disabled" (Automated)	111
\circ (L1) Ensure "Force encrypted backups" is set to "Enabled" (Automated)	113
$\circ~$ (L1) Ensure "Allow personalized ads delivered by Apple" is set to "Disabled" (Manual)	115
$\circ~$ (L1) Ensure "Allow Erase All Content and Settings" is set to "Disabled" (Automated)	117
$\circ~$ (L2) Ensure "Allow users to accept untrusted TLS certificates" is set to "Disabled" (Automated)	119
$\circ~$ (L1) Ensure "Allow trusting new enterprise app authors" is set to "Disabled" (Manual)	121





NIST Cybersecurity Framework



• Within each function is a set of assessable areas

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Steps to implement a Cyber Security Framework

Identify security Influences

- Business
 Objectives
- Risk
 Management
 Framework
- Government
 Requirements
- Other

Confirm Framework

E.g. NIST

- Identify
- Protect
- Detect
- Respond
- Recover

RECOVER DENING CYBERSECURITY FRAMEWORK VERSION 1.1 DETECT







GOVERNANCE

Implementing Policies – SANS and NIST Security Policy Templates



Acceptable Encryption Policy	+
Acceptable Use Policy	+
Acquisition Assessment Policy	+
Analog/ISDN Line Security Policy	+
Anti-Virus Guidelines	+
Automatically Forwarded Email Policy	+
Bluetooth Baseline Requirements Policy	+
Communications Equipment Policy	+
Cyber Security Incident Communication Log	+
Cyber Security Incident Form Checklist	+
Cyber Security Incident Initial System Triage	+
Cyber Security Incident Recovery	+
Data Breach Response Policy	+
Database Credentials Policy	+
Dial In Access Policy	+
Digital Signature Acceptance Policy	+
Disaster Recovery Plan Policy	+





1 GOVERNANCE 2 PROTECT

3 FRAMEWORK

4 GAP ANALYSIS

6 AGENDA ITEM

7 EDUCATE

4 – Undertake a Gap Analysis to assess the Cybersecurity posture of the School





1 GOVERNANCE 2 PROTECT

GAP

STEPS









1 GOVERNANCE 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSIS

KEY TECH

6 AGENDA ITEM 7 EDUCATE

6 – Make Security a Regular Agenda Item



Establish ICT Steering Committee



Make Cyber Security an agenda item in ICT Steering Committee and Board Updates



Discuss identified gaps and risks (be transparent)



IT provides updates on framework implementation



Discuss emerging threats



Seek expert guidance and support, if required





1 GOVERNANCE 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSIS 5 KEY TECH

6 AGENDA ITEM 7 EDUCATE

7 – Educate Staff, Parents, and Students on Cyber Security



Regular Training Sessions

- Staff
- Parents
- Students



Audience-Centric Approach • Relevant Content for Roles





Focus Areas

- Password Security
- Phishing Awareness
- Social Engineering
- Safe Browsing
- Data Privacy
- Responsible Social Media Use





Acceptable Use of Resources

School Equipment & Systems





7 – Educate Staff, Parents, and Students on Cyber Security



Consistent Reinforcement

Regular Cybersecurity Practice



Audience-Centric Approach • Relevant Content for Roles



Addressing Cyberbullying



Teaching Digital Citizenship



Managing Screen Time

Implementing Parental Controls







1 GOVERNANCE 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSIS 5 KEY TECH

AGENDA ITEN

7 – Educate Staff, Parents, and Students on Cyber Security

To educate staff, parents and students on Cybersecurity effectively:



Audience Relevance

- Tailored Content
- Role-Specific Information





<u>https://www.covenant.nsw.edu.au/parent-</u> <u>resources/technology-support/technology-advice-for-parents</u>





1 GOVERNANCI 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSI 5 KEY TECH

AGENDA ITEN

7 – Educate Staff, Parents, and Students KnowBe4



Phishing Defense

- Regular Tests & Training
- Guard Against Social Engineering



Phishing Reporting

- Simplified Alert Process
- Webmail & Email Client
 Button





• Baseline & Follow-up Checks







1 GOVERNANCE 2 PROTECT 3 FRAMEWORK 4 GAP ANALYSIS 5 KEY TECH

AGENDA ITEM

7 EDUCATE

Preparing a Cyber Security incident response plan



Incident Management



- A cyber incident is any attempted or actual unauthorised access.
- The goal of incident response is to detect and halt attacks.





Risk Management Terms



Risk Management

- It is <u>not</u> realistic to protect all systems equally.
- Risk management aims to **mitigate**, not eliminate risks.









Critical Steps for Cyber Security Incident Response Planning



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Covenant Incident Response Plan





Document control			Common Cyber Incidents
Versio	on history	5	Roles and Responsibilities
Relea	se approval	5.1	Points of Contact for Reporting Cyber
1	Introduction	Incide	nts
1.1	Context	5.1.1	Escalation
1.2	Purpose	5.2	Cyber Incident Response Team (CIRT)
1.3	Authority	5.3	Critical Incident Coordinating Team
1.4	Review	(CICT))
2	Operationalising this document	5.4	Board of Trustees
2.1	Preparation	5.5	Third Party Vendors
2.2	Detection and Analysis	5.6	Incident Notification and Reporting
2.3	Containment, Eradication and Recovery	/5.6.1	Legal and Regulatory Requirements
2.4	Post Incident Activity	5.6.2	Cyber Insurance
3	Terminology and Definitions	6	Communications
3.1	What is a cyber security event?	6.1	Internal Communications
3.2	What is a cyber security incident?	6.2	External Communications
3.3	Information and Data Classification	6.3	Supporting documentation
3.3.1	Very Sensitive Data	6.4	Document Storage
3.3.2	Sensitive Data		
3.3.3	Private Data		
3.3.4	Public Data		
3.3.5	Systems and Data Classification		

Common Cyber Security Incidents 4 and Responses

- **Common Threat Vectors** 4.1
- Covenant Christian School



Identify Assets and Risks

Identify data to protect and its location, prioritise valuable assets, address vulnerabilities, conduct penetration tests, and understand financial risks.

Threat Classification Overview:

- Confidentiality
- Integrity
- Availability







Develop Incident Response Plans & Support Teams

To effectively mitigate and manage cyber security incidents.



Operational Continuity



Incident Response Team Model





Operational Continuity

- Ensure essential school and business functions and processes continue
- Minimise downtime
- Avoid negative impacts
- Swift Restoration of IT Systems



Assess the School's Backup Strategy & Create a Written Backup Plan



Develop Disaster Recovery Plans (DR)



Develop a Business Continuity Plan (BCP)



Base structure on chosen Framework. i.e. CIS.





Disaster Recovery and Business Continuity







- Specialised team focused on rapid response to critical incidents
- Minimise damage, restore operations and protect assets
- Comprised of key stakeholders across the school
- Brings together technical, operational, and communication expertise

CIRT – **C**ritical Incident **R**esponse **T**eam CIST – **C**ritical Incident **C**oordinating **T**eam Board – School Board



School Board

Although not actioning response activities, Board will assist the CICT in guiding response activities particular during containment and recovery phases.

Questions that the Board should be prepared to provide guidance to:

- How does the Board determine the risk appetite in relation to the reputational damage that a data breach may cause?
- How does the Board quantify the reputational damage an event may have on the school?
- In the event of a ransom demand, will the organisation consider payment?



Responsibility

- Incident Notification and Reporting
 - Legal and regulatory requirements
 - Cyber Insurance
- Communications
 - Internal
 - External
 - Document Storage











Communication with School Community in the event of an outage

Contents of Scheduled Report	2 reports which produce current Student, Parent and Staff contact details and key communication information.
Recipients of the Report	Business Manager, Director of ICT, ICT Manager (sent to roles not individuals)
Schedule and Frequency	Fortnightly
Data Transfer to Encrypted USB / Secure Storage	Work in progress
Designated Platform for Bulk Email Dissemination	SendGrid
Designated Platform for Bulk SMS Delivery	SMS Central





Execute Plan With Executive Endorsement

- Obtain endorsement and support from executive leadership
- Resource allocation for implementation
- Executive role in communication
- Escalation procedures and timely decisions
- Leadership by example
- Review and reflection



Plan With Your People

- Select people with appropriate skills for the incident response team.
- Identify groups within the school that may need to participate in incident handling, consider:
 - School Executive
 - IT Team
 - Marketing
 - Finance and Risk
 - Human Resources
 - Security and Facilities Management





Reassess and Refine

- Regularly review and update your CSIRP
- Incorporate lessons learned from previous incident
- Evolve as the threat landscape changes
- Evolve response strategies
- Team trainings and cross-department collaboration
- Conduct tabletop exercises for training, testing and refinement to ensure currency and continuous improvement.



Exercise in a Box – Table Top Exercises

https://www.cyber.gov.au/resources-business-and-government/exercise-in-a-box

Australian

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Third Party Software Compromise -**Participant Briefing**

1.1 Scenario overview

This scenario investigates the risks around using third party software and the controls your organisation has in place to mitigate the impact of a third party supplier being compromised. In particular, the exercise looks at password controls, the ability to detect and respond to a compromise and the ability to cope with disruption to key services.

Australian

Cyber Security

1.2 Objectives

The objective of this exercise is to explore how your organisation would respond to the compromise of a third party supplier. Discussions will cover the detection and response capability of your organisation, processes for dealing with service disruption, and policies in place to prevent stolen credentials being used to compromise network services. The outcomes of discussions around the events in this scenario can be an opportunity to identify areas for improvement. This exercise has the following aims:

- Understand risk associated with third party software
- Identify areas for improvement in password and authentication policy
- Clarify which network services are publically exposed
- Understand detection and response capability of organisation
- · Determine processes for dealing with key services being unavailable · Build trusted relationships and develop shared understanding between key
- stakeholders
- · Prepare and train key staff to think about what risks they are exposed to · Operate in a no fault environment to check and test cyber security defences and
- capabilities

1.3 Guidance for participants

This scenario is intended to help you understand how your organisation currently manages the risk of third party software, password policies and detection and response capabilities. Each part of this scenario is based on a realistic attack, in which your organisation's network is compromised using credentials stolen from a third party supplier. Understanding the risks associated with third party software is important. Having a strong detection and response capability, along with a password policy that encourages the

Third Party Software Compromise -**Facilitator Prompts**

This document should be used alongside the scenario events (injects) and discussion points which are delivered in the service. The additional questions below are to help get conversations started or explore some areas of interest in more detail. This should be reviewed before the scenario is run, and referred to throughout.

Section 1: Third Party Supplier Compromise Facilitator guidance

The scenario starts with an online third party e-commerce tool that the organisation uses being compromised. If an e-commerce tool does not feel relevant to your organisation, the use of another online tool or cloud service that feels more appropriate can be substituted. The questions posed will still be relevant.

The compromised company has had all of their username and passwords stolen. This section aims to determine if the user has considered the risk of using third party software and if there are any policies in place to deal with a compromise.

Facilitator Prompts

- 1. Have you considered the benefits and risks of using third party service suppliers?
 - · What are the risks to your organisation?
 - · How much of your sensitive data do they have access to?
- What processes do you have in place to respond to the compromise of a third party supplier you use?
 - What is your immediate response? Can the compromised accounts still be accessed? Should access to services be revoked?
 - Do you have a process to determine which of your services are most at risk following the compromise of a given third party? Will passwords be changed? Who will do this?
- How can you determine which users' credentials have been stolen? 3
 - Do you keep accurate records of users in your organisation who have access to third party business services? Do you have a procedure to investigate where accounts on these services have been compromised?



Scribe sheet – Scenario:

Exercise Start Date:	Time: Atte	ndees:	
Name:	Role		
Name:	Role:		
Name:	Role:		
Name:	Role		
Name:	Role:		
Name	Dole		
		We have a number	er of exercises to choose from that include

2 Threatened leak of sensitive data - Scribe sheet

Inject 1:



Discussion based exercises:

- A ransomware attack delivered by phishing email
- · Mobile phone theft and response
- · Being attacked from an unknown Wi-Fi network
- Insider threat leading to a data breach
- Third party software compromise
- Bring Your Own Device (BYOD)
- Threatened leak of sensitive data
- Supply chain risks
- · Home and remote working
- Managing a vulnerability disclosure
- Supply chain software
- · Supply chain ransomware attack



Micro-exercises:

- Responding to ransomware attacks
- Identifying and reporting a suspected phishing email
- Using passwords
- · Connecting securely
- · Securing cloud productivity suites
- Securing video conferencing services

Simulation exercises:

· A simulation exercise mimicking a cyber threat present on your organisation's network

Key Takeaways

- Operational Continuity:
 - Disaster Recovery
 - Business Continuity Plan
- Incident Response Team Model:
 - CIRT Critical Incident Response Team
 - CIST Critical Incident Coordinating Team
 - Responsibility: Notification, reporting and communication strategies
- Ongoing refinement, training, and reassessment





Reporting to the Board



Board Reporting Challenges

- Too much information or too little information
- Clear non-technical communication
- Articulating IT risks, vulnerabilities, and potential impacts
- Aligning IT strategy with organisational goals
- Managing cyber security and data privacy concerns



Board Reporting

Cyber Security actions based – November 2021

- Reporting was brief and dot points sufficed.
- Cyber Security tasks were undertaken as-and-when necessary.
 - Cyber Security continues to be focused on across multiple projects, including:
 - The implementation of the cloud immutable backup systems has been finalised and the daily tape backups have been retired. Weekly tape backups will continue and are held on site.
 - An external penetration tester has been selected and the testing is scheduled to run from 19 Oct - 1 Nov
 - TechServe has run a phishing campaign, which involves sending fake emails to staff, and are currently collating the results. The team received about 40 tickets and 15 walkup queries seeking advice about the email, indicating a high level of awareness among staff.
 - Audits of passwords, licensing, and security best practice continue as part of the annual Security Uplift.


Board Reporting

Pen Test Actions based - March 2022

- Traditional dot point board report was supplemented with penetration test actions register.

inding ID	Risk	Title	Remediation Timeframe	Status
INPT-1	Extreme	Account and privilege management is not adequate.	3-6 Months	Open
INPT-2	Extreme	Password hygiene is not adequate.	1-2 Months	Open
ENPT-1	High	Multi-factor authentication is not required for external access to Virtual Private Network.	1-2 Months	Open
ENPT-2	High	Users are susceptible to email-based phishing attacks.	Ongoing	Open
ENPT-3	High	Website is vulnerable to web cache poisoning.	N/A	Closed
INPT-3	High	Systems are vulnerable to null session attack.	1 Month	Open
INPT-4	High	Students have local administrative privileges and wide-reaching network access on	Covenant to confirm	Open
INPT-5	High	Domain is susceptible to Kerberoasting attacks.	1-2 Months	Open
WNPT-1	High	Wireless LAN is not logically segmented from wired LAN.	3 Months	Open
WNPT-2	High	No Wireless Intrusion Prevention System (WIPS) implemented.	1 Month	Open
ENPT-4	Moderate	DNS server vulnerable to zone transfer.	N/A	Closed
ENPT-5	Moderate	Issues with certificates used to validate host identity.	3 Months	Open
ENPT-6	Moderate	DMARC has not been implemented.	1 Month	Open
ENPT-7	Moderate	DKIM has not been implemented on primary mail domain.	1 Month	Open
INPT-6	Moderate	Credentials are cached on workstations that are constantly connected to Domain Control	1-2 Months	Open
INPT-7	Moderate	KRBTGT account password has not been changed for an extensive period of time.	2 Weeks	Open
INPT-8	Moderate	Directory Replication allowed to hosts other than Domain Controllers.	1-2 Months	Open
INPT-9	Moderate	Domain Administrators are not restricted to Domain Controllers.	2 Weeks	Open
INPT-10	Moderate	Administrators are assigned debug privileges.	2 Weeks	Open
INPT-11	Moderate	VMware vCenter missing critical security patches.	2 Weeks	Open
INPT-12	Moderate	Issues with certificates used to validate host identity.	1-2 Months	Open
INPT-13	Moderate	802.1X authentication not implemented on wired network.	6-12 Months	Open



Board Reporting

Enhanced Pen Test Actions based - March 2023

• Penetration test actions register was enhanced with the following additional columns.

Finding ID	Original Risk	Title	Status	Current Risk
INPT-01	Extreme	Account and privilege management is not adequate.	Complete	Low
INPT-02	Extreme	Password hygiene is not adequate.	Complete	Mitigated
ENPT-01	High	Multi-factor authentication is not required for external access to Virtual Private Network.	Complete	Mitigated
ENPT-02	High	Users are susceptible to email-based phishing attacks.	On-going	Moderate
ENPT-03	High	Website is vulnerable to web cache poisoning.	Complete	Mitigated
INPT-03	High	Systems are vulnerable to null session attack.	Complete	Mitigated
INPT-04	High	Students have local administrative privileges and wide-reaching network access on untruste	In-Progress	High
INPT-05	High	Domain is susceptible to Kerb roasting attacks.	Complete	Low
WNPT-01	High	Wireless LAN is not logically segmented from wired LAN.	Complete	Low
WNPT-02	High	No Wireless Intrusion Prevention System (WIPS) implemented.	Complete	Mitigated
ENPT-04	Moderate	DNS server vulnerable to zone transfer.	Complete	Mitigated
ENPT-05	Moderate	Issues with certificates used to validate host identity.	Complete	Mitigated
ENPT-06	Moderate	DMARC has not been implemented.	Complete	Mitigated
ENPT-07	Moderate	DKIM has not been implemented on primary mail domain.	Complete	Mitigated
INPT-06	Moderate	Credentials are cached on workstations that are constantly connected to Domain Controller	Complete	Mitigated
INPT-07	Moderate	KRBTGT account password has not been changed for an extensive period of time.	Complete	Mitigated
INPT-08	Moderate	Directory Replication allowed to hosts other than Domain Controllers.	Complete	Mitigated
INPT-09	Moderate	Domain Administrators are not restricted to Domain Controllers.	Complete	Mitigated
INPT-10	Moderate	Administrators are assigned debug privileges.	Complete	Mitigated
INPT-11	Moderate	VMware vCenter missing critical security patches.	Complete	Mitigated
INPT-12	Moderate	Issues with certificates used to validate host identity.	Complete	Mitigated
INPT-13	Moderate	802.1X authentication not implemented on wired network.	In-Progress	Moderate



Board Reporting for the Future

- Framework based reporting
 - Essential Eight
 - CIS Controls
 - NIST
- Cyber risk register





Cyber Risk Register Reporting Likelihood vs Consequence = Risk Rating







Cyber Risk Register Reporting

Risk	Cause	Likelihood	Consequence	Risk Rating	Mitigation Plan
Password compromise	Phishing email	Likely	Compromised account is lost to intruder (Moderate)	High	Implement staff training in high-risk emails
Data leak	Mixing personal and professional use of work device	Possible	Unauthorised access to data (Moderate)	Moderate	Implement strict policies and guidelines regarding personal use or business devices
Mobile data	Digital media isn't backed up	Likely	Loss of business assets (Minor)	Moderate	Compile a register of key assets and ensure routine back-up
Cloud vendor network compromise	Vendor has failed to use encrypted cloud communication	Rare	Information and assets transferred by vendor is compromised (Catastrophic)	High	Ensure vendor terms and conditions are reviewed to ensure encryption and best practice.





CIS Controls Self-Assessment Tool

https://www.cisecurity.org/insights/blog/cis-csat-free-tool-assessing-implementation-of-cis-controls

• Free online tool for assessing implementation of the CIS Security Controls.

All Controls

CIS COS

our assessment 🔽 Industry average

• Allows for tracking over time.

Paul Carnemolla > Dashboar

#	Control Question	Applicable	Assigned	Completed	Validated	Policy Defined	Control Implemented	Control Automated	Control Reported
at v	Establish and Maintain Detailed Enterprise Asset Inventory	Yes		*	*	Written Policy -	Implemented on Most Systems 🔹	Automated on Some Systems +	Reported on Some Systems
	Address Unauthorized Assets	Yes	\bigcirc	*	*	Approved Written Policy +	Implemented on Most Systems +	Automated on Most Systems -	Reported on Most Systems
	Establish and Maintain a Software Inventory	Yes	\bigcirc	×	*	Approved Written Policy 🗣	Implemented on All Systems 👻	Automated on Most Systems 🔹	Reported on All Systems
	Ensure Authorized Software is Currently Supported	Yes		*	*	Informal Policy +	Implemented on Most Systems +	Automated on Most Systems +	Reported on Most Systems
D	Address Unauthorized Software	Yes	atri	-		Select an option +	Select an option +	Select an option -	Select an option
	Establish and Maintain a Data Management Process	Yes	ω.	÷		Select an option +	Select an option 🔹	Select an option +	Select an option
	Establish and Maintain	Yes	(e)		-	Select an option +	Select an option +	Select an option -	Select an option







Organization Score I Industry Average

NIST Cyber Security Framework Maturity Level Radar Chart



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Conclusion and next steps



Conclusion and next steps

- Recap of key takeaways
- Importance of ongoing Cyber Security vigilance
- Encouraging collaboration and sharing best practices
- Next steps for improving Cyber Security preparedness



Today's resources and further information



https://www.neweratech.com/au/covenant-principalsconference-cybersecurity-in-schools/ Contact Details Paul Carnemolla & Solomon James



Paul Carnemolla



Solomon James